

Replacement Claims

removing excess material overlying the insulative layer while leaving the contact within the opening; the contact having a concentration of chlorine; and
heating the contact in a nitrogen-containing gas to reduce the concentration of chlorine to less than about 3% by wt.

73. (original) A method for filling high aspect ratio contact openings, comprising the steps of:

providing a substrate having a silicon-comprising substrate and an insulative layer formed thereon, the insulative layer having a surface and at least one contact opening formed therein to the substrate; the contact opening having an aspect ratio of at least 3:1;

forming a seed layer comprising titanium silicide over the insulative layer and the surface of the substrate within the contact opening; and

forming a multi-layered film over the seed layer, the film comprising a layer comprising boron-doped titanium nitride interposed between two layers comprising titanium nitride layer;

removing excess material overlying the insulative layer while leaving the contact within the opening; the contact having a concentration of chlorine; and

heating the contact in a nitrogen-containing gas to reduce the concentration of chlorine to less than about 3% by wt.

74-100. (currently cancelled)

101. (new) A method of forming a conductive contact in an opening in an insulative layer, comprising the steps of:

filling the opening with a conductive material to form the conductive contact; and

heating the contact in a (reactive) gas to remove at least a portion of an (undesirable) component from the contact.